CLAIMS

1. An automatic programming method of dividing a machining area into a first process region in which one end of a work model is held for a machining and a second process region in which other end of the work model is held for the machining, and creating a program for controlling a numerical control unit based on the division of the machining area, the automatic programming method comprising:

a first process including calculating a volume of the machining area; and

a second process including

calculating a process-dividing position that evenly divides the calculated volume of the machining area in a direction of a turning axis as a process-dividing position indicating a boundary between the first process region and the second process region;

determining a region from the process-dividing position to the one end of the work model as the first process region; and

determining a region from the process-dividing position to the other end of the work model as the second process region.

2. The automatic programming method according to claim 1, wherein

the calculating of the first process includes

dividing the volume of the machining area, excluding an end-face machining area where an end-face machining is performed for both end faces in a direction of a turning axis from the whole machining area into an inner-diameter machining side and an outer-diameter machining side; and

calculating volumes of the inner-diameter machining side and the outer-diameter machining side, respectively, and

the calculating of the second process includes

calculating a position that evenly divides the volume of the inner-diameter machining side as a process-dividing position on the inner-diameter machining side; and

calculating a position that evenly divides the volume of the outer-diameter machining side as a process-dividing position on the outer-diameter machining side.

3. The automatic programming method according to claim 2, wherein

the calculating of the first process further includes

obtaining the machining area excluding the end-face machining area from the whole machining area;

dividing a turning area where a turning is performed from among the machining area excluding the end-face machining area into the inner-diameter machining side and the outer-diameter machining side; and

calculating volumes of the inner-diameter machining side and the outer-diameter machining side, respectively, and

the calculating of the second process further includes

deriving a position that evenly divides the volume of the turning area on the inner-diameter machining side as the process-dividing position on the inner-diameter machining side; and

deriving a position that evenly divides the volume of the turning area on the outer-diameter machining side as the process-dividing position on the outer-diameter machining side.

4. An automatic programming method of dividing a machining area into a first process region in which one end of a work model is held for a machining and a second process region in which other end of the work model is held for the machining, and creating a program for controlling a numerical control unit based on the division of the machining area, the automatic programming method comprising:

calculating a distance obtained by adding a predetermined length to a chucking allowance of a jig model at a first process;

calculating a position away from one end of the work model by the calculated distance in a direction of a turning axis as a process-dividing position indicating a boundary between the first process region and the second process region;

determining a region from the process-dividing position to the one end of the work model as the first process region; and

determining a region from the process-dividing position to the other end of the work model as the second process region.

5. A computer program that causes a computer to execute the method according to any one of claims 1 to 4.

6. An automatic programming device that divides a machining area into a first process region in which one end of a work model is held for a machining and a second process region in which other end of the work model is held for the machining, and creates a program for controlling a numerical control unit based on the division of the machining area, the automatic programming device

comprising:

a volume calculating unit that calculates a volume of the machining area; and

a process dividing unit that calculates a process-dividing position that evenly divides the calculated volume of the machining area in a direction of a turning axis as a process-dividing position indicating a boundary between the first process region and the second process region, determines a region from the process-dividing position to the one end of the work model as the first process region, and determines a region from the process-dividing position to the other end of the work model as the second process region.

7. The automatic programming device according to claim 6, wherein

the volume calculating unit divides the volume of the machining area, excluding an end-face machining area where an end-face machining is performed for both end faces in a direction of a turning axis from the whole machining area into an inner-diameter machining side and an outer-diameter machining side, and calculates volumes of the inner-diameter machining side and the outer-diameter machining side, respectively, and

the process dividing unit calculates a position that evenly divides the volume of the inner-diameter machining side as a process-dividing position on the inner-diameter machining side, and calculates a position that evenly divides the volume of the outer-diameter machining side as a process-dividing position on the outer-diameter machining side.

8. The automatic programming device according to claim 7,

wherein

the volume calculating unit obtains the machining area excluding the end-face machining area from the whole machining area, divides a turning area where a turning is performed from among the machining area excluding the end-face machining area into the inner-diameter machining side and the outer-diameter machining side, and calculates volumes of the inner-diameter machining side and the outer-diameter machining side, respectively, and

the process dividing unit derives a position that evenly divides the volume of the turning area on the inner-diameter machining side as the process-dividing position on the inner-diameter machining side, and derives a position that evenly divides the volume of the turning area on the outer-diameter machining side as the process-dividing position on the outer-diameter machining side.

9. An automatic programming device that divides a machining area into a first process region in which one end of a work model is held for a machining and a second process region in which other end of the work model is held for the machining, and creates a program for controlling a numerical control unit based on the division of the machining area, the automatic programming device comprising:

a process dividing unit that calculates a distance obtained by adding a predetermined length to a chucking allowance of a jig model at a first process, calculates a position away from one end of the work model by the calculated distance in a direction of a turning axis as a process-dividing position indicating a boundary between the first process region and the second process region, determines a region from the process-dividing position to

the one end of the work model as the first process region, and determines a region from the process-dividing position to the other end of the work model as the second process region.